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## ABSTRACT

A two-part study was undertaken to determine whether the experiencing of limits to control in areas for which people are known to seek psychological help would be perceived as differentially stressful by characteristically internal and external individuals. A group of 237 nonclient students indicated their degree of perceived personal control over certain stressful life events for which a sample of student clients had sought counseling. Factor analysis of these responses resulted in four Limits to Personal Control scales. Comparisons were made between 30 Internals and 36 Externals. A trichotomy of the I-E distribution from this first nonclient sample indicated that internals anticipated greater control on all four limits scales, as hypothesized. The same four scales were administered to 66 internal and 54 external nonclient students, but the instructions differed. This group rated how stressful it would be to experience the events comprising each scale. The prediction that Internals would report higher imagined stress than Externals was supported for the two Limits to Control scales dealing with personal events. It was not supported for the two Limits of Control scales related to interpersonal events. (Author)

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Perceived Stress as a Function of  
Limits to Personal Control

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Perceived Stress as a Function of  
Limits to Personal Control

Since perceptions of control have a rather profound effect upon the manner in which individuals come to grips with adversities (Averill, 1973; Lefcourt, 1975; Seligman, 1975) the nature of the relationship between perceptions of control and stress has received considerable attention in the psychological literature. Averill (1973), for example, in his appraisal of the complexity of the relationship between stress and personal control over aversive stimuli, concludes that "the experience of stress is determined, in part, by the qualitative nature and meaning of the control response." In her review of the attribution of control research, Wortman (1976) finds that people tend to minimize the role of chance in producing various outcomes and to overestimate the relationship between their behavior and uncontrollable life events. (Similar is the phenomenon of "illusion of control" reported by Langer [1975] where subjects treated chance events as controllable.) Wortman further suggests that people with exaggerated notions of personal control or with considerable past experience at controlling the important events in their lives, may find uncontrollable outcomes all the more stressful when they do occur. Furthermore, these individuals may not recognize such outcomes as uncontrollable and may

waste considerable effort trying to alter the situations.

Thus, although it may in fact be helpful to individuals struggling with obvious difficulties, such as living in an old-age home (Schutz, 1976) or dealing with obesity (Wallson and Wallston, Note 3), to feel that they can control what happens to them, there must also be a realistic limit to one's self-appraisal of personal control (Rotter, 1975).

Rotter's construct of Internal-External Locus of Control, which refers to the degree to which individuals view themselves as having some causal role in determining specified events, has direct relevance to the relationship between perceived control and stress. Past research indicates that individuals holding a characteristically internal perception of their world may respond less appropriately in certain kinds of stressful situations (Stebbins & Stone, 1977). Internals, for example, tend to blame themselves after laboratory-manipulated failure experiences, whereas Externals are more likely to direct blame toward impersonal sources (e.g., Davis & Davis, 1972; Efran, 1963; Phares, 1971; Phares & Lamiell, 1974; Phares, Wilson, & Klyver, 1971). (Attributional differences between Internals and Externals after success feedback, however, appear to be not as pronounced as after failure feedback). Similarly, although evidence has accumulated regarding the relationship between feelings of helplessness and the onset of illness or disease (cf. APA Task Force on Health Research, 1976), Lowery and Du

Cette (1976) were surprised to find that diabetics classified as Internals maintained their health less well as the disease progressed than did diabetics who were classified as Externals. In fact, external diabetics showed a significant decrease over time in the number of problems associated with their disease while internal diabetics showed no decrease. The authors attribute their findings to Internals experiencing a limit to their usual response of control which in turn resulted in feelings of less control over the disease and thus to more disease-related problems.

Lastly, previous studies by the authors (Gilbert, 1976; Gilbert & Mangelsdorff, Note 1) found that internal clients, in comparison to internal nonclient controls, reported a temporary or situational externality at the time of seeking therapy whereas external clients and nonclients reported comparable levels of situational externality. Moreover, contrary to expectations, the subjective experience of stress in the particular situations for which therapy was sought, rather than the number of stressful situations experienced in the period immediately preceding therapy, served to differentiate the client groups from the non-client ones. The importance of the reaction to stress, as opposed to the amount of stress experienced, was also noted by Liem and Liem (Note 2) in a study investigating the relationship between life events, social support, and physical and psychological well-being of undergraduates.

The picture which emerges from these several bodies of litera-

ture is that despite the utility of internal perceptions of control, this propensity for control may become dysfunctional if one fails to recognize the limits of his/her control in certain areas of life. The primary purpose of the present investigation was to explore the proposed relationship between perceptions of control and self-perceived stress vis-a-vis Rotter's Construct of Locus of Control. In addition, rather than focusing on dire events and accidents, as has typically been the case in past research, the focus here was attributions of control and stress regarding events and feelings more typically reported by individuals seeking psychological services.

#### Overview of the Two Studies

Specifically, we were interested in knowing whether characteristically internal individuals, in contrast to characteristically external, would attribute higher stress to the imagined experience of certain potentially stressful subjective and objective events for which Internals believe they have a higher degree of personal dominance and mastery than do Externals. To accomplish this objective a four-step procedure was followed within the framework of a two-part study: (a) a set of stressful events was obtained from the intake forms of a sample of students seeking therapy at a university's psychological services center; (b) a large sample of nonclient students was asked to indicate the degree of personal control they felt they had over each of these stressful events. Factor analysis of their

responses resulted in four "Limits of Personal Control Over Stressful Events" Scales (hereafter called Limits to Personal Control).

(c) The Internal and External students obtained from the trichotomy of the I-E distribution for the first sample were compared in regard to their scores on the Limits to Personal Control scales (i.e., subjects ratings of the stressful events with limits to personal control instructions were compared); and (d) Internal and External students obtained from the trichotomy of the I-E distribution of a second large sample were asked to indicate the degree of stress associated with the stressful events comprising each Limits to Personal Control Scale (i.e., subjects ratings of the stressful events with degree of imagined stress instructions were compared). The first three steps were accomplished in Study I and the fourth and final step in Study II.

To determine the relationship between subjects' responses to the stress measures and causal sources for personal outcomes, subjects in the second study also responded to five items regarding "what made these events stressful." Four of these items were developed in accordance with Heider's (1958) conceptualization, more recently modified by Frieze and Weiner (1971), which views causal sources for objective events along the two dimensions of internal-external and stable-unstable with effort being internal and unstable; luck, external and unstable; ability, internal and stable; and task difficulty, external and stable. Given that attributions for

subjective feelings may not parallel those for objective events, particularly in regard to limits to personal control, personal flaw was included as an additional internal and stable causal source. Finally, a measure of self-esteem (Helmreich & Stapp, 1974) was used as a general indication of social adjustment.

### Hypotheses

It was hypothesized that: (a) in the first study, Internals, in contrast to Externals, would report feeling greater control on each of the Limits scales; and (b) in the second study, Internals, in comparison to Externals, would report higher stress on each of the four Limits to Personal Control scales.

While no specific hypotheses were formulated concerning the relative importance attributed by Internals and Externals to the five specific causal sources, it was anticipated that Internals would place more importance on the internal-stable sources and Externals more importance on the external-unstable one. Moreover, in accordance with previous work (cf. Joe, 1971), Internals were expected to report higher self-esteem than Externals.

No specific predictions were made regarding the interrelationships of these three sets of variables (i.e., stress derived from Limits of Personal Control, self-esteem, and perceived sources of stress) as a function of locus of control.



## STUDY I

MethodSubjects and Procedure

In exchange for course credit 237 students (121 female and 116 male) enrolled in introductory psychology courses at the University of Texas were asked to complete a questionnaire concerning "student perceptions of student concerns." The questionnaire was composed of an I-E scale and the stressful events needed for the development of the Limits to Personal Control Scales, together with several filler measures having to do with college satisfaction.

Measures

Limits of Personal Control Scales. A measure of Limits to Personal Control was developed by taking events which precipitated the seeking of psychological help from the intake forms completed by a sample of 100 male and female students who sought therapy for the first time at the university's psychological services center. The 35 items initially chosen for the scales were selected to be representative of stressful events which characteristically could occur to people in the process of living, and representative of both objective (e.g. failing an exam) and subjective (feeling tense and anxious) experiences.

The 237 nonclient subjects were asked to rate each of these items according to their opinion of "how much personal control would you have over its occurrence." A 99-point Likert scale which ranged from 1 (no personal control) through 50 (no control and control equally likely) to 99 (complete personal control) was used for the ratings.

Factor analysis of the responses from these 237 subjects resulted in four Limits to Personal Control scales which accounted for 69.87% of the common variance: (a) a 9-item Feeling Ineffectual (FI) scale, (b) a 3-item Personal Rejection (PR) scale, (c) a 3-item Romantic Aloneness (RA) scale, and (c) a 3-item Social Aloneness (SA) scale. The coefficient alphas were .89, .69, .66, and .68, respectively. Examples of items from each of the scales are: FI, "feeling useless" and "feeling incompetent"; PR, "turning other people off" and "other people having a low opinion of you"; SA, "having a few friends" and "being ignored"; and RA, "not dating" and "not being in a love relationship with someone your age."

Of these scales, Feeling Ineffectual and Personal Rejection appear to tap subjective feelings and intrapersonal events, whereas the remaining two are more concerned with interpersonal events.

For the ease of comparisons, the scale scores were divided by the number of items comprising each scale. Thus the scores reported are in terms of the mean item values.

Locus of Control. The measure of locus of control was the Internality (I) scale recently developed by Levenson (1972) from a revision and factor analysis of Rotter's Internal-External (I-E) scale. Since this scale measures internality separately from a belief in chance and powerful others, it was particularly well-suited to an investigation of limits to personal control. The I scale consists of eight items presented in a 6-point Likert format (definitely true to definitely not true) and is scored in the internal direction. Examples of items are: "When I make plans I am almost certain to make them work, " and "I can pretty much determine what will happen in my life." Levenson (1972) reports a one-week test-retest reliability of .64, a split-half (Spearman-Brown) reliability of .62, and non-significant gender differences in subjects' responses.

The distribution resulting from scoring the 237 subjects' I-E responses was categorized into scores approximately one standard deviation (6.87) above and below the mean of 35.38 (Levenson reports a mean of 34.81 for a sample of 50 undergraduates). Persons scoring from 42 to 48 were assigned to the Internal group ( $N = 30$ ) and persons scoring from 1 to 28 to the External group ( $N = 36$ ). The mean I-E scores for these two groups were 43.77 and 24.67, respectively.

### Results

Hypothesized differences between the Internal and External groups on the four Limits to Personal Control scales were made by directional  $t$ -tests. The 2(gender)  $\times$  2(group) ANOVA performed on the Limits scores resulted in no significant effects due to gender.

As expected, significant differences between the Internal and External groups occurred on each of the four Limits to Personal Controls Scales. The means,  $t$ -values, and significance levels are summarized in Table 1.

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Insert Table 1 about here

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Internals, to a greater extent than Externals, indicated that they expected to have a higher degree of personal dominance and mastery over their subjective and objective worlds. Specifically, they felt they have greater control over feeling ineffectual, personal rejection, social aloneness, and romantic aloneness than did Externals. At the same time, it may be important to note that the control scores for Externals were all numerically greater than the scale midpoint of 50 (no control and control equally likely). Even Externals, then, reported having some degree of control over these particular stressful events. Moreover, the magnitude of the Internals' scores, while

being significantly greater than those of the Externals, were not highly extreme (they averaged around 75 on the 99-point scale).

To compare the degree of control reported in the various areas, within each I-E group, one-way analysis of variance tests were performed on the scores from the four Limits to Personal Control scales, separately for Internals and Externals. Neither of these analyses afforded an overall significant  $F$ -value, indicating that subjects within each I-E grouping did not report differential levels of control for the particular areas being assessed.

## STUDY II

### Method

#### Subjects and Procedure

In exchange for course credit 168 female and 166 male students at the same university were asked to participate in a study concerning "student perceptions of student concerns." The procedure and instruments were the same as in Study I with the exception that: (a) the stressful situations were presented with "stress" instructions (i.e., subjects rated the stressful events with degree of imagined stress instructions), (b) a measure of self-esteem (Helmreich & Stapp, 1974) was completed, (c) five perceived causes of imagined stress were rated, and (d) only the 66 internal and 54 external subjects

obtained from dividing the sample of 334 subjects approximately one standard deviation above and below the mean were included (mean I-E scores were 44.15 and 24.23, for Internals and Externals respectively).

### Measures

Stress. Subjects were asked to respond to the same items as in the first study, but with the instructions "how stressful would it be for you to experience each of the events listed below?" They used a 1 to 6 scale which ranged from "not at all stressful" (1) to "very stressful" (6). Subjects' responses to the stressful events were then scored using the same four Limits to Personal Control scales developed in Study I. On each of these scales high scores were associated with high stress. Stress scale scores were then divided by the number of items comprising each scale so that the four scores could be reported in terms of the 6-point item format.

Sources of Stress. Subjects indicated on a 6-point scale how true each of five explanations was in regard to what would make particular items stressful for them. The four items developed in accordance with Heider's (1958) model were: (a) "feeling I don't have the particular abilities necessary or required" (ability; internal, stable), (b) "feeling I am not trying hard enough"

(effort; internal, unstable), (c) "feeling such situations are hard to handle" (task difficulty; external, stable), and (d) "feeling unlucky when it comes to these kinds of things" (luck; external, unstable). The fifth item, also representing a stable and internal source, personal flaw, was "feeling there must be something wrong with me." Higher item scores were associated with greater endorsement of the items.

Self-esteem. Self-esteem was measured by the 16-item short form of the Texas Social Behavior Inventory (Helmreich & Stapp, 1974). Examples of items are: "I usually expect to succeed in the things I do" and "I feel confident of my social behavior." Subjects responded to each item on a 5-point scale ranging from "not at all characteristic of me" to "very characteristic of me." Total scores may vary from zero to 64, with higher scores being associated with higher self-esteem. Coefficient alpha of the 16-item scale in the present sample was .92.

### Results

Directional t-tests were used to compare the Internal and External groups on the four stress scores obtained from the Limits to Personal Control scales. Comparisons of Internals and Externals for which no hypotheses were stated were made by one-way analysis of variance procedures. ANOVA performed on the stress scores resulted in

no significant interaction effects due to gender. Females, however, tended to report higher stress scores in the intra-personal area.

### Results

#### Stress<sup>1</sup>

It was predicted that Internals would report higher stress than Externals on all four Limits to Personal Control Scales. Only two of these predictions were supported: Internals reported higher stress ( $p < .01$ ) in regard to Feeling Ineffectual and Personal Rejection, but not in regard to Romantic and Social Aloneness. Moreover, both groups viewed the four areas as somewhat stressful, the mean item values all being greater than the scale midpoint of 3.5. The mean item scores and  $t$ -values are presented in Table 2.

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Insert Table 2 about here

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Comparisons within each group, made by one-way analysis of variance, afforded overall significant ( $p < .01$ )  $F$ -values for both Internals and Externals. Specific pairs of means were compared by Duncan's multiple range procedure. The results from these comparisons indicate that for both Internals and Externals the areas of Feeling Ineffectual and Personal Rejection were viewed as significantly ( $p < .01$ ) more stressful than the two Aloneness areas.



### Sources of Stress<sup>2</sup>

As can be seen from Table 3, of the five sources of stress only the external, unstable source of luck was differentially endorsed ( $p < .05$ ) with the Externals ( $M = 2.92$ ) viewing it as more true than Internals ( $M = 2.09$ ). One-way analysis of variance comparisons of the means for the five sources of stress within each group, however, indicate that luck was significantly less endorsed than the other four sources by both Externals and Internals. Also, the means for effort, ability, and task difficulty, as well as for personal flaw, did not differ significantly from one another and were comparable in magnitude for the Internals and Externals.

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Insert Table 3 about here

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### Self-esteem

As expected, Internals ( $M = 44.64$ ) reported much higher self-esteem than did Externals ( $M = 37.54$ ),  $t(64) = 4.44$ ,  $p < .001$ .

### Intercorrelation of Stress and Sources of Stress Scores

To obtain a clearer picture of the possible relation between the stress scores obtained from the Limits to Personal Control scales and the five sources of stress, subjects' responses on these measures were intercorrelated separately

for the Internal and External groups. Of interest were both the degree of correlation between the four stress scores and these five sources of stress for the Internal and External groups separately and the difference in the set of correlations obtained from each group. The differences between appropriate pairs of  $r$ s were tested using Fischer's  $Z$  Transformation (McNemar, 1969). The correlation coefficients, their significance, and the significance of the comparison between correlations for the Internal and External groups are summarized in Table 4.

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Insert Table 4 about here

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Looking at the sources related to each area of stress, it can be seen that ten of the 40  $r$ s reached statistical significance, four for the Internals and six for the Externals. With one exception (personal flaw for Feeling Ineffectual) coefficients which showed significance for one group failed to for the other. In general, there appeared to be very little relationship between the scores in the four areas of stress investigated and the four sources of stress for objective events (Heider, 1958)--six out of 32  $r$ s were significant. In contrast, four of the eight  $r$ s for personal flaw as a source of stress reached significance.

For Internals, stress in the personal areas of Feeling Ineffectual and Personal Rejection was positively related to the internal, causal source of personal flaw (.42 and .44, respectively), whereas stress in the interpersonal areas of Social and Romantic Aloneness was positively related to the external, stable, causal source of task difficulty ( $r = .40$  and  $.53$ , respectively). For Externals, Feeling Ineffectual was associated with both lack of ability ( $r = .30$ ) and personal flaw ( $r = .49$ ); Personal Rejection with both lack of effort ( $r = .30$ ) and lack of luck ( $r = .36$ ); Romantic Aloneness with unluckiness ( $r = .37$ ); and Social Aloneness with personal flaw ( $r = .48$ ).

Of the tests of the differences between the sets of 20  $r$ s, four reached significance ( $p < .01$ ), two of the four being in the area of stress due to Personal Rejection. For Internals, in contrast to Externals, such stress was less related to lack of effort and more related to personal flaw as a causal source. Lastly, the relationship between the endorsement of task difficulty as a source of stress and stress due to Social Aloneness or to Romantic Aloneness was significantly stronger for Internals than for Externals.

#### DISCUSSION

The purpose of the present investigation was to explore the relationship between perceptions of control over areas of subjective and objective stressful life experiences related to

psychological help-seeking and the imagined stress associated with these areas vis-a-vis Rotter's construct of Locus of Control. The basic hypothesis was that individuals classified as Internals, in contrast to those classified as Externals, would report greater imagined stress for those areas in which Internals anticipated greater control, this higher stress perhaps reflecting a need on the part of Internals for unrealistic control over their environment. Our results provide a partial confirmation of this hypothesis.

Although Internals, in comparison to Externals, felt they had greater control and dominance over the events comprising all four Limits to Personal Control scales, they reported greater imagined stress in regard to only two of the four, namely Feeling Ineffectual and Personal Rejection. In retrospect, these findings are intuitively compelling and perhaps should have been predicted a priori. Clearly, no individuals, regardless of how much personal dominance they anticipated over their environment, could function on a day-to-day basis if they became highly stressed in regard to every event over which they anticipated control. (It may be recalled that the Limits scores of Internals were not extreme.) Thus, it seems plausible that there are areas where Internal individuals anticipate control and also experience considerable stress if this control cannot

be exercised, as well as areas where they anticipate control and do not experience considerable stress. For the present sample and measures this differentiation became manifest in the distinction between what we called personal events (Feelings of Being Ineffectual and Personal Rejection) and interpersonal events (Romantic and Social Aloneness), the former being viewed by Internals as more stressful than the latter.

Some insight into this disparity is provided by the dramatic pattern which emerged from the correlations between the sources and areas of stress for Internals. Surprisingly, stress in the personal areas was not related to the four causal sources for objective events (Heider, 1958). Such stress, however, was related to the internal and possibly stable causal source "something is wrong with me." In contrast, imagined stress in the less stressful areas of interpersonal relationships was related significantly only to the causal source of task difficulty--an external but stable source which one predictably cannot control. Thus the imagined stress reported by Internals in the personal area may be indicative of subjective events which they believe they should control, and when they find themselves unable to do so, parallel to the causal source of ability used in personal objective situations such as mastering a task (e.g. Davis & Davis, 1972), they attribute their lack of control to the internal stable source of personal flaw.

Externals were less predictable. As hypothesized, they anticipated considerably less dominance and mastery over the events comprising the four Limits to Personal Control scales than did Internals. At the same time they did anticipate some modicum of dominance. Although they anticipated much less control than Internals, they still perceived considerable imagined stress in the four areas assessed by the Limits to Personal Control scales, and like Internals, perceived greater stress in the personal than in the interpersonal area. As predicted, Externals perceived less stress in the personal area than did Internals, but, contrary to predictions, they reported stress comparable to that of Internals in the interpersonal area. That Externals perceived high stress in areas where they anticipate low to middling control most probably stems from their low self-esteem coupled with their low perceptions of anticipated control. (Externality is known to be associated with higher levels of manifest anxiety [Lefcourt, 1975].) Apparently intrapersonal events are more vulnerable to threats of self-esteem than are interpersonal ones, thereby accounting for the significantly higher stress in the areas of Feeling Ineffectual and Personal Rejection.

The intercorrelation of sources of stress with perceived stress provided no highly distinct pattern for Externals, with correlations low to moderate in magnitude appearing for all five sources of stress. Interestingly, their stress was not related to the endorsement of the stable factors of ability and task difficulty. (The one exception is Feeling Ineffectual, where significant correlations occurred with nearly all the sources.) However, their stress was often related to bad luck and personal flaws.

What conclusions can be drawn? First, Internals and Externals, vis-a-vis Rotter's Construct, do differ in their perceptions of dominance and mastery of the world in regard to the particular areas assessed by the four Limits to Personal Control scales, with Internals uniformly anticipating greater control than Externals. Second, although Internals anticipated comparable levels of control across the four areas assessed, they imagined higher stress in the areas of Personal Rejection and Feeling Ineffectual than in the areas of Social and Romantic Aloneness, their stress in these first two areas being greater than that reported by Externals. Third and finally, the causal sources associated with stress appear to be different for the two groups.

The current zeitgeist calls for greater personal control, with reduced stress and more effective living commonly viewed as being associated with this greater control (Averill, 1973; Seligman, 1975). The present investigation indicates that under certain conditions for certain individuals, namely characteristically internal people faced with feelings of Ineffectualness or Personal Rejection, greater personal control is related to greater imagined stress. Whether Internals' responses of higher imagined stress to these kinds of events are, in fact, less adaptive was not addressed in the present investigation and clearly needs further study. Nonetheless, it would appear that individuals typically respond to events in ways which serve to protect their self-esteem and sense of personal worth. The tendency of Internals to associate an internal and possibly stable causal source, personal flaw, with the imagined stress in these two areas would appear to not serve this end.



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## Footnotes

<sup>1</sup>Intercorrelations of scores from the four stress measures were typically low and ranged from  $r = .29$  to  $r = .56$ .

<sup>2</sup>Intercorrelations of responses to the five sources of stress items were uniformly low to moderate in magnitude--with one exception all the  $r$ s were less than .42, the majority being less than .25.

Table 1

Mean Item Scores and  $t$ -values for Subjects' Ratings  
of Limits to Dominance and Control on the Limits Scales

Limits Scales	Mean Item Scores				<u>t</u> (64)
	Internals		Externals		
	(N = 30)		(N = 36)		
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	
Feeling Ineffec- tual	76.67	17.89	59.31	18.86	3.83***
Personal Re- jection	72.01	17.52	55.50	16.94	3.87***
Romantic Alone- ness	74.28	14.25	64.01	22.56	2.24*
Social/ Inter- personal Alone- ness	72.78	13.90	61.74	17.04	2.91**

Note. Higher scores are associated with greater dominance and control over one's world. Items were rated on a 99-point scale. Limits Scales refer to Limits of Personal Control over Stressful Events Scales.

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

Table 2  
Mean Item Values for Subjects' Ratings  
of Stress on the Four Limits to Personal Control Scales

Limits Scales	Mean Item Scores				t(118) <sup>a</sup>
	Internal		External		
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	
Feeling Ineffec- tual	4.77 <sup>b</sup>	.56	4.38 <sup>b</sup>	.78	3.17*
Personal Rejec- tion	4.85 <sup>b</sup>	.88	4.33 <sup>b</sup>	1.12	2.91*
Romantic Alone- ness	3.97 <sup>c</sup>	.94	3.77 <sup>c</sup>	1.28	<1.00
Social/ Inter- personal Alone- ness	3.60 <sup>c</sup>	1.04	3.63 <sup>c</sup>	1.14	<1.00

Note. Higher scores are associated with greater stress. Items were rated on a 6-point scale.

<sup>a</sup>One-tailed tests were applied.

<sup>b,c</sup>Within each group different superscripts denote that the means differ from each other at  $p < .05$ , based on Duncan's method of post hoc comparison. Same superscripts indicate no differences.

\* $p < .005$



Table 3  
Comparisons of Internals and Externals  
on Sources of Stress

	Internals		Externals		<u>t</u>
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	
Lack of ability	3.95 <sup>a</sup>	1.86	3.75 <sup>a</sup>	1.42	<1
Lack of effort	4.32 <sup>a</sup>	1.76	3.96 <sup>a</sup>	1.68	<1
Task difficulty	4.09 <sup>a</sup>	1.57	4.00 <sup>a</sup>	1.53	<1
Lack of luck	2.09 <sup>b</sup>	1.41	2.92 <sup>b</sup>	1.41	3.19*
Personal flaw	3.68 <sup>a</sup>	1.81	3.75 <sup>a</sup>	1.67	<1

Note: Items were scored on a 6-point scale which ranged from completely untrue (1) to completely true (6). Thus higher scores are associated with more of the particular dimension being measured.

<sup>a,b</sup> Within each group different superscripts denote that the means differ from each other at  $p < .05$ , based on Duncan's method of post hoc comparisons. Same superscripts indicate no differences.

\*  $p < .01$

Table 4  
Correlations of Stress Scores from Limits to  
Personal Control Scales with the Five Causal Sources

Limits Scales	Inability		Lack of effort		Task difficulty		Unlucky		Personal Flaw	
	I	E	I	E	I	E	I	E	I	E
Feeling Ineffectual	.06	.30*	.06	.29	.08	.26	.18	.08	.42**	.44**
Personal Rejection	.01	.09	-.17 <sup>a</sup>	.30 <sup>*a</sup>	.22	.12	.28	.36*	.44 <sup>**a</sup>	.17 <sup>a</sup>
Romantic Aloneness	.01	-.03	-.05	-.11	.40 <sup>**a</sup>	-.17 <sup>a</sup>	.22	.37*	.17	.26
Social Aloneness	.04	.04	.06	.09	.53 <sup>**a</sup>	.18 <sup>a</sup>	.13	.22	.28	.48**

<sup>a</sup>Pairs of rs which differed significantly when compared by Fischer's Z transformation method.

\*  
 $p < .05$

\*\*  
 $p < .01$